SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
M.Sc.(Chemistry) END SEMESTER EXAMINATIONS NOVEMBER - 2023
SEMESTER - I

**22PCHCT1003 - Chemical Kinetics and Thermodynamics**

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

## Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Brief the role of continuous flow and stopped flow techniques with neat block diagrams in studying fast reactions.
2. Relate the reversible, consecutive and parallel reactions with relevant examples.
3. Predict the types of mechanisms involved in the inhibition of enzyme catalyzed reactions.
4. Explain the variation of chemical potential with temperature and pressure.
5. Describe the determination of fugacity by graphical method with a neat sketch.
6. Write a comparative account on the formation of HCl & HBr.
   Mention the explosion limit of reactions.
7. Show the study of phenomenological approach in Onsager equation.
8. Recommend an expression for entropy of ideal gases as proposed by Sakur Tetrode.

## Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. (i) Describe in detail the estimation of free energy, entropy and enthalpy of activation and highlight their significance (6 marks)
   (ii) Interpret the polar and steric sensitivity factors of Taft equation. (4 marks)
10. Apply Hinshelhood and Lindemann theories in predicting the unimolecular reactions
11. Examine the following in detail
    (i) Debye theory (5 marks)
    (ii) Dulong and Petit's law (5 marks)
12. Compare Maxwell Boltzmann, Fermi - Dirac and Bose - Einstein Statistics elaborately.

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. Examine about concepts of activity and activity coefficients in a vivid manner.

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